

Automated Butterfly Valves

2-Way & 3-Way

*Mixing & Diverting,
Wafer and Lug Style Bodies
For Hot & Chilled Water, Steam and Special Applications*



Bray®

Automated Butterfly Valves

Features

SERIES 31

2"-20" Resilient Seated Valves
Pressure Rating: 175 psi WOG
Temp. Rating: -40°F to 250°F
2 & 3-Way Assemblies
Mixing and Diverting Services

Bray Controls is proud to offer this automated line of butterfly valves. The Series 31 is available in a lug or wafer style body. Designed for general applications, this valve features long service life, ease of parts replacement, and interchangeability of components.

Bray's high quality automated butterfly valves precisely regulate the flow of hot and cold water or steam through all types of coils and heat exchangers.

The Series 31 2-Way valves have an equal percentage flow characteristic. The 3-Way valves have a liner flow. Both offer a very high rangeability and bubble tight shut-off capacity, and feature ease of installation and maintenance.

Optional Features Include:

- Aluminum Bronze discs
- Cast Steel bodies
- Fluoroelastomer Seats for high temperatures up to +400°F.

The Bray Series 31 offers a thin-profile disc without disc/stem fasteners to obstruct the flow. This design eliminates possible leak paths and allows for high C_v values with reduced turbulence. Stem design provides blow-out proof protection.

Most of Bray's electric and pneumatic actuators direct mount to Bray's butterfly valves, reducing space requirements.



ACTUATORS

The low profile Series CA line of Electric Actuators operates on 120 or 220 VAC, and is available for use with incremental or proportional controllers. Proportional models feature a 0-10 VDC position feedback. Both spring return and non-spring return models are available.

The Series CA features an easily accessible manual override lever for manually positioning the valve when the actuator is not powered.

Bray offers additional actuators, both electric and pneumatic, to meet a variety of applications. Please see the Actuator section of this manual for more information.

SERIES 41

High Performance
2-1/2"-20" ANSI Class 150
Resilient Seated Valves

The Series 41 offers bidirectional, zero leakage, shutoff at full rated ANSI Class 150 operating pressures. Rated 150 psi saturated steam at 366°F for on-off applications and 50 psi at 300°F for modulating service. The simple, innovative design offers rugged reliability and easy maintenance.

All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved.

 **Bray** CONTROLS
Commercial Division

A Division of BRAY INTERNATIONAL, Inc.

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**CF Series
Automated Butterfly Valves
Valve Selection Data**

C_v VALUES – VALVE SIZING COEFFICIENT, SERIES 31

Valve Size	Valve Model No.	Disc Position In Degrees								
		10°	20°	30°	40°	50°	60°	70°	80°	90°
2"	__LX-X020	1	7	16	27	43	61	84	114	144
2-1/2"	__LX-X025	1.5	11	24	43	67	107	163	223	282
3"	__LX-X030	2	15	35	61	96	154	267	364	461
4"	__LX-X040	3	27	62	109	171	274	496	701	841
5"	__LX-X050	5	43	98	170	268	428	775	1146	1376
6"	__LX-X060	6	56	129	225	354	567	1025	1542	1850
8"	__LX-X080	12	102	241	421	680	1081	1862	2842	3316
10"	__LX-X100	19	162	382	667	1076	1710	2948	4525	5430
12"	__LX-X120	27	235	555	1005	1594	2563	4393	6731	8077
14"	__LX-X140	34	299	756	1320	2149	3384	5939	9974	10538
16"	__LX-X160	45	397	1001	1749	2847	4483	7867	11761	13966
18"	__LX-X180	58	507	1281	2237	3643	5736	10065	14496	17214
20"	__LX-X200	72	632	1595	2786	4536	7144	12535	18812	22339

C_v is defined as the volume of water in U.S.G.P.M. that will flow through a given restriction or valve opening with a pressure drop of one (1) p.s.i. at room temperature.

FLOW IN STANDARD WEIGHT PIPE AS A FUNCTION OF FLUID VELOCITY

Valve Size	Valve Model	Flow in Gallons Per Minute (GPM)							
		2 ft/s	4 ft/s	6 ft/s	8 ft/s	10 ft/s	12 ft/s	14 ft/s	16 ft/s
2"	__LX-X020	21	42	63	84	105	125	146	167
2 1/2"	__LX-X025	30	60	90	119	149	179	209	239
3"	__LX-X030	46	92	138	184	230	276	323	369
4"	__LX-X04X	79	159	238	317	397	476	555	635
5"	__LX-X05X	125	249	374	499	624	748	873	998
6"	__LX-X06X	180	360	540	720	900	1080	1261	1441
8"	__LX-X08X	312	624	939	1247	1559	1871	2183	2495
10"	__LX-X10X	492	983	1475	1966	2458	2949	3441	3932
12"	__LX-X12X	705	1410	2115	2820	3525	4230	4935	5640
14"	__LX-X14X	859	1719	2578	3438	4297	5157	6016	6876
16"	__LX-X16X	1139	2277	3416	4554	5693	6831	7970	9108
18"	__LX-X18X	1457	2914	4370	5827	7284	8741	10197	11654
20"	__LX-X20X	1814	3628	5442	7257	9071	10885	12699	14513

- 0=Full Rated Disc / 1=50 PSI Rated Disc
- N=Normally Open / C=Normally Closed / 3-Way Configuration Number
- 2=2-Way / 3=3-Way
- NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

**CF Series
Automated Butterfly Valves**

Valve Selection Data

SERIES 31 VALVE WITH LOW PRESSURE ELECTRIC ACTUATORS

Valve Size	Valve Model	C _v 60°	C _v 90°	Close-Off Rating				
				NR/SR-2216	NR-2224	BBB	BIB	BCA
2"	__LX-X020	61	44	175	175	175	175	175
2-1/2"	__LX-X025	107	282	100 / 175*	175	100	175	100 / 175*
3"	__LX-X030	154	461	175*	100 / 175*	—	175	175*
4"	__LX-X040	274	841	50(u)	50(u)/ 175*	—	50(u)/ 175*	50(u)
5"	__LX-X050	428	1376	—	50(u)*	—	50(u)*	—
6"	__LX-X060	567	1850	—	50(u)*	—	50(u)*	—

SERIES 31 VALVE WITH SERIES 70 ELECTRIC ACTUATORS

Valve Size	Valve Model	C _v 60°	C _v 90°	Close-Off Rating						
				70-0051	70-0081	70-0121	70-0201	70-0301	70-0501	70-0651
2"	__LX-X020	61	44	175	—	—	—	—	—	—
2-1/2"	__LX-X025	107	282	175	—	—	—	—	—	—
3"	__LX-X030	154	461	175	—	—	—	—	—	—
4"	__LX-X040	274	841	175	—	—	—	—	—	—
5"	__LX-X050	428	1376	50(u)	175	—	—	—	—	—
6"	__LX-X060	567	1850	—	175	—	—	—	—	—
8"	__LX-X080	1081	3316	—	50(u)	—	175	—	—	—
10"	__LX-X100	1710	5430	—	—	—	50(u)	175	—	—
12"	__LX-X120	2563	8077	—	—	—	—	50(u)	175	—
14"	__LX-X140	3384	10538	—	—	—	—	—	50(u)	150
16"	__LX-X160	4483	13966	—	—	—	—	—	—	50(u)
18"	__LX-X180	5736	17214	—	—	—	—	—	—	50(u)

SERIES 31 VALVE WITH LOW PRESSURE PNEUMATIC ACTUATORS

Valve Size	Valve Model	C _v 60°	C _v 90°	Close-Off Rating			
				D-3153	D-3244	D-3246	D-3246-D
2"	__LX-X020	61	44	175	—	—	—
2-1/2"	__LX-X025	107	282	175	—	—	—
3"	__LX-X030	154	461	175	—	—	—
4"	__LX-X040	274	841	50(u)	175	—	—
5"	__LX-X050	428	1376	—	50(u)	175	—
6"	__LX-X060	567	1850	—	—	175	—
8"	__LX-X080	1081	3316	—	—	50(u)	175*
10"	__LX-X100	1710	5430	—	—	—	50(u)*

→ N=Normally Open / C=Normally Closed / 3-Way Configuration Number
 → 2=2-Way / 3=3-Way
 → NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

* Dual Actuators, (u)=undercut disc rated for bubble tight shut-off

**CF Series
Automated Butterfly Valves
Valve Selection Data**

SERIES 31 VALVE WITH SERIES 92 DOUBLE ACTING PNEUMATIC ACTUATORS 80 PSI

Valve Size	Valve Model	C _v 60°	C _v 90°	Close-Off Rating							
				92-063	92-083	92-092	92-118	92-127	92-160	92-210	90-255
2"	__LX-X020	61	44	175	175	—	—	—	—	—	—
2-1/2"	__LX-X025	107	282	175	175	—	—	—	—	—	—
3"	__LX-X030	154	461	175	175	—	—	—	—	—	—
4"	__LX-X040	274	841	50(u)	175	—	—	—	—	—	—
5"	__LX-X050	428	1376	—	150	175	—	—	—	—	—
6"	__LX-X060	567	1850	—	50(u)	150	175	—	—	—	—
8"	__LX-X080	1081	3316	—	—	50(u)	175	175	—	—	—
10"	__LX-X100	1710	5430	—	—	—	50	150	175	—	—
12"	__LX-X120	2563	8077	—	—	—	50(u)	50(u)	175	—	—
14"	__LX-X140	3384	10538	—	—	—	—	—	100	150	—
16"	__LX-X160	4483	13966	—	—	—	—	—	50(u)	150	—
18"	__LX-X180	5736	17214	—	—	—	—	—	50(u)	100	150
20"	__LX-X200	7144	22339	—	—	—	—	—	—	50(u)	150

→ N=Normally Open / C=Normally Closed / 3-Way Configuration Number
 → 2=2-Way / 3=3-Way
 → NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

*(u)=undercut disc rated for bubble tight shut-off

SERIES 31 VALVE WITH SERIES 93 SPRING RETURN PNEUMATIC ACTUATORS 80 PSI

Valve Size	Valve Model	C _v 60°	C _v 90°	Close-Off Rating						
				93-83-4	93-92-4	93-118-4	93-127-4	93-160-4	93-210-4	91-255-4
2"	__LX-X020	61	44	175	—	—	—	—	—	—
2 1/2"	__LX-X025	107	282	175	—	—	—	—	—	—
3"	__LX-X030	154	461	—	175	—	—	—	—	—
4"	__LX-X040	274	841	—	50(u)	175	—	—	—	—
5"	__LX-X050	428	1376	—	—	50(u)	175	—	—	—
6"	__LX-X060	567	1850	—	—	50(u)	175	—	—	—
8"	__LX-X080	1081	3316	—	—	—	50(u)	175	—	—
10"	__LX-X100	1710	5430	—	—	—	—	50(u)	175	—
12"	__LX-X120	2563	8077	—	—	—	—	—	50(u)	175
14"	__LX-X140	3384	10538	—	—	—	—	—	50(u)	175
16"	__LX-X160	4483	13966	—	—	—	—	—	—	175
18"	__LX-X180	5736	17214	—	—	—	—	—	—	50(u)
20"	__LX-X200	7144	22339	—	—	—	—	—	—	50(u)

→ N=Normally Open / C=Normally Closed / 3-Way Configuration Number
 → 2=2-Way / 3=3-Way
 → NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

*(u)=undercut disc rated for bubble tight shut-off

Note: Actuators indicated are for 2-way, Normally Closed applications. For 3-way or Normally Open applications, consult your nearest Bray representative.

**CF Series
Automated Butterfly Valves**

Valve Selection Data

SERIES 41 VALVE WITH SERIES 70 ELECTRIC ACTUATORS

Valve Size	Valve Model	C _v 60°	C _v 90°	Close-Off Rating						
				70-0051	70-0081	70-0121	70-0201	70-0301	70-0501	70-0651
2-1/2"	MKL2-X025	78	160	150	—	—	—	—	—	—
3"	MKL2-X030	123	185	150	—	—	—	—	—	—
4"	MKL2-X040	250	375	150	—	—	—	—	—	—
5"	MKL2-X050	360	790	—	—	150	—	—	—	—
6"	MKL2-X060	510	1350	—	—	150	—	—	—	—
8"	MKL2-X080	1060	2800	—	—	—	—	150	—	—
10"	MKL2-X100	1630	4300	—	—	—	—	—	150	—
12"	MKL2-X120	2530	6650	—	—	—	—	—	—	150

↳ N=Normally Open / C=Normally Closed

SERIES 41 VALVE WITH SERIES 92 DOUBLE ACTING PNEUMATIC ACTUATORS 80PSI

Valve Size	Valve Model	C _v 60°	C _v 90°	Close-Off Rating							
				92-063	92-083	92-092	92-118	92-127	92-160	92-210	90-255
2-1/2"	MKL2-X025	78	160	150	—	—	—	—	—	—	—
3"	MKL2-X030	123	185	150	—	—	—	—	—	—	—
4"	MKL2-X040	250	375	—	150	—	—	—	—	—	—
5"	MKL2-X050	360	790	—	—	150	—	—	—	—	—
6"	MKL2-X060	510	1350	—	—	150	—	—	—	—	—
8"	MKL2-X080	1060	2800	—	—	—	150	—	—	—	—
10"	MKL2-X100	1630	4300	—	—	—	—	—	150	—	—
12"	MKL2-X120	2530	6650	—	—	—	—	—	150	—	—

↳ N=Normally Open / C=Normally Closed

SERIES 41 VALVE WITH SERIES 93 SPRING RETURN PNEUMATIC ACTUATORS 80PSI

Valve Size	Valve Model	C _v 60°	C _v 90°	Close-Off Rating						
				93-083-4	93-092-4	93-118-4	93-127-4	93-160-4	93-210-4	91-255-4
2-1/2"	MKL2-X025	78	160	150	—	—	—	—	—	—
3"	MKL2-X030	123	185	—	150	—	—	—	—	—
4"	MKL2-X040	250	375	—	150	—	—	—	—	—
5"	MKL2-X050	360	790	—	—	—	150	—	—	—
6"	MKL2-X060	510	1350	—	—	—	150	—	—	—
8"	MKL2-X080	1060	2800	—	—	—	—	150	—	—
10"	MKL2-X100	1630	4300	—	—	—	—	—	150	—
12"	MKL2-X120	2530	6650	—	—	—	—	—	—	150

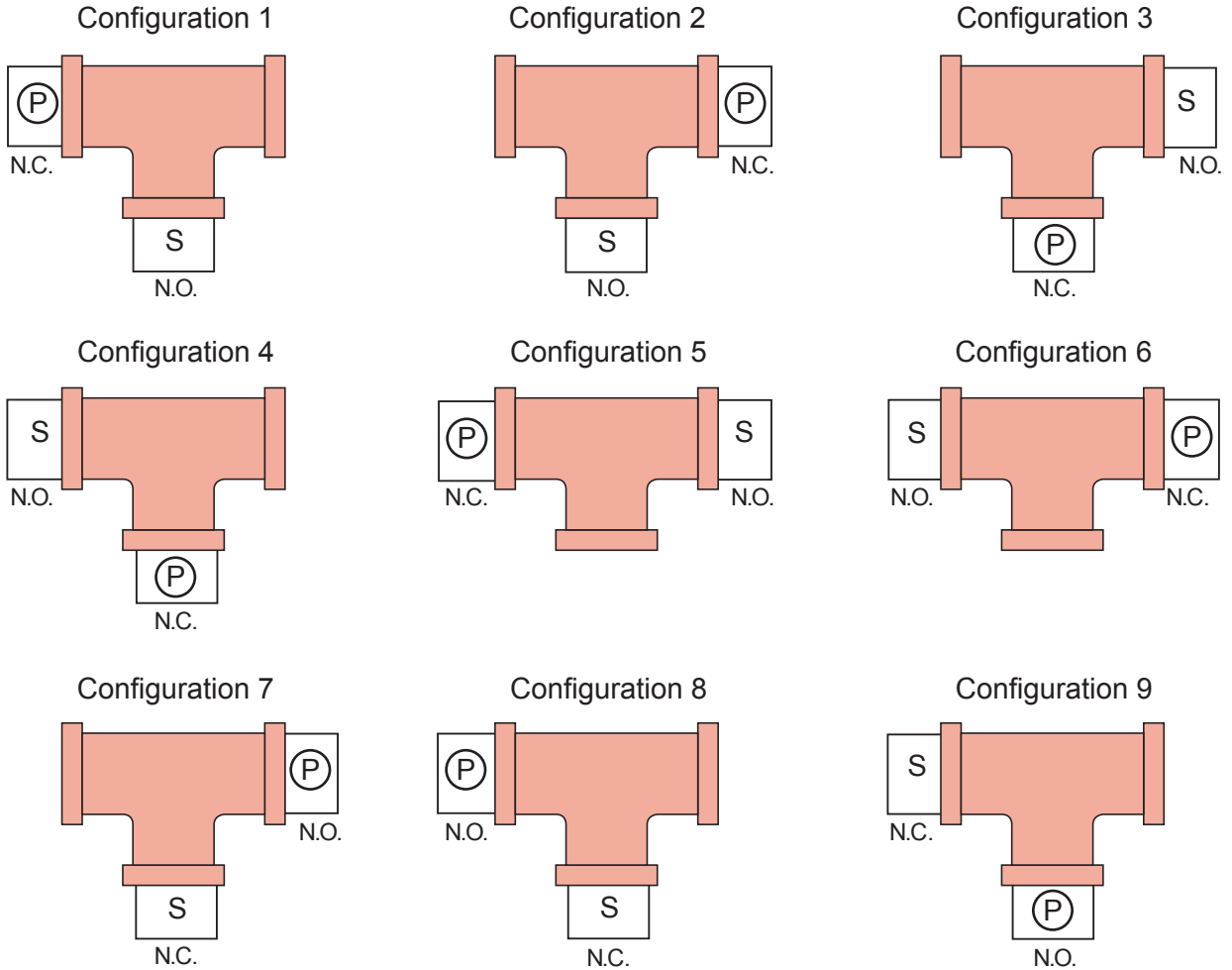
↳ N=Normally Open / C=Normally Closed

Note: Actuators indicated are for Normally Closed applications. For Normally Open applications, consult your nearest Bray representative.

**CF Series
 Automated Butterfly Valves**

3-Way Valve Flow

VALVE FLOW PATTERNS



- (P) Primary Valve/Actuator Location
 - S Secondary Valve
- View is from top

Valves ordered without the valve configuration specified will be shipped as Configuration No. 3.

Note: All 3-Way butterfly valve assembly orders should have configuration specified. Pricing remains the same, however Bray must know the specifications in order to manufacture the appropriate linkage kit.

Note: 3-Way assemblies with low-pressure pneumatic actuators (D-series), are limited to arrangements: 1, 2, 7, and 8.

**CF Series
Automated Butterfly Valves**

Dimensions

2-WAY VALVE WITH CA SERIES ELECTRIC ACTUATOR

Valve NPT	Model No.	C _v 90°	C _v 60°	A	B	C	D	E	Lug Bolting Data		
									BC	Holes	Threads
2"	_L2-X020	144	61	3.69	1.62	2.00	2.30	5.50	4.75	4	5/8-11
2-1/2"	_L2-X025	282	107	4.19	1.75	2.50	2.57	6.00	5.50	4	5/8-11
3"	_L2-X030	461	154	4.88	1.75	3.00	2.81	6.25	6.00	4	5/8-11
4"	_L2-X040	841	274	6.06	2.00	4.00	4.09	7.00	7.50	8	5/8-11
5"	_L2-X050	1376	428	7.06	2.12	5.00	4.61	7.50	8.50	8	3/4-10
6"	_L2-X060	1850	567	8.12	2.12	5.75	5.06	8.00	9.50	8	3/4-10

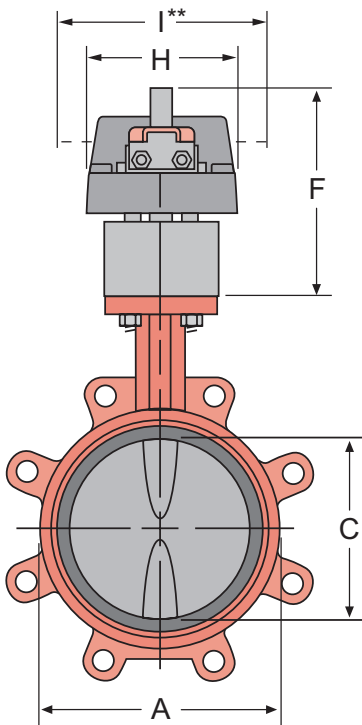
→ N=Normally Open / C=Normally Closed
→ NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

**I = range of handle rotation

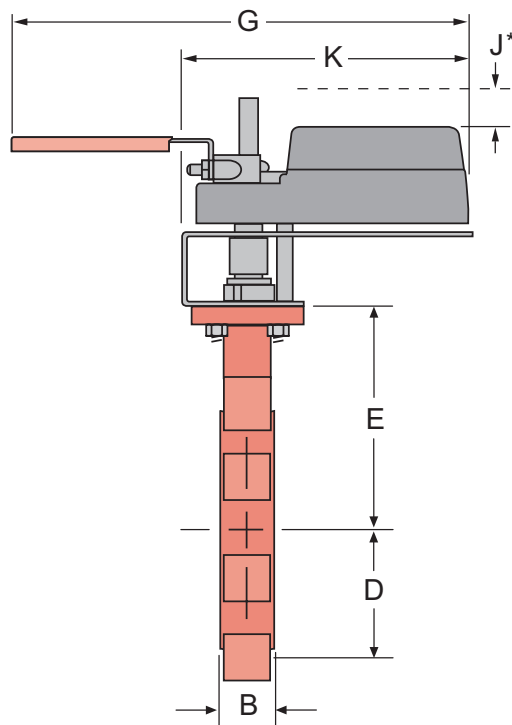
*J = height required for cover removal

Actuator Model	F	G	H	I**	J*	K
NR-2216	6.00	12.50	4.00	10.00	2.00	7.50
NR-2224	6.00	12.50	4.00	10.00	2.00	7.50
SR-2216	6.00	—	4.00	—	2.00	10.00
B Series	6.00	—	4.00	—	—	10.50
Dual Act.	11.75	16.00	5.00	—	2.00	—

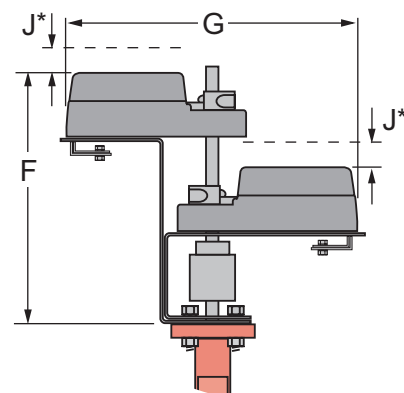
FRONT VIEW



SIDE VIEW



DUAL ACTUATORS



**CF Series
 Automated Butterfly Valves**

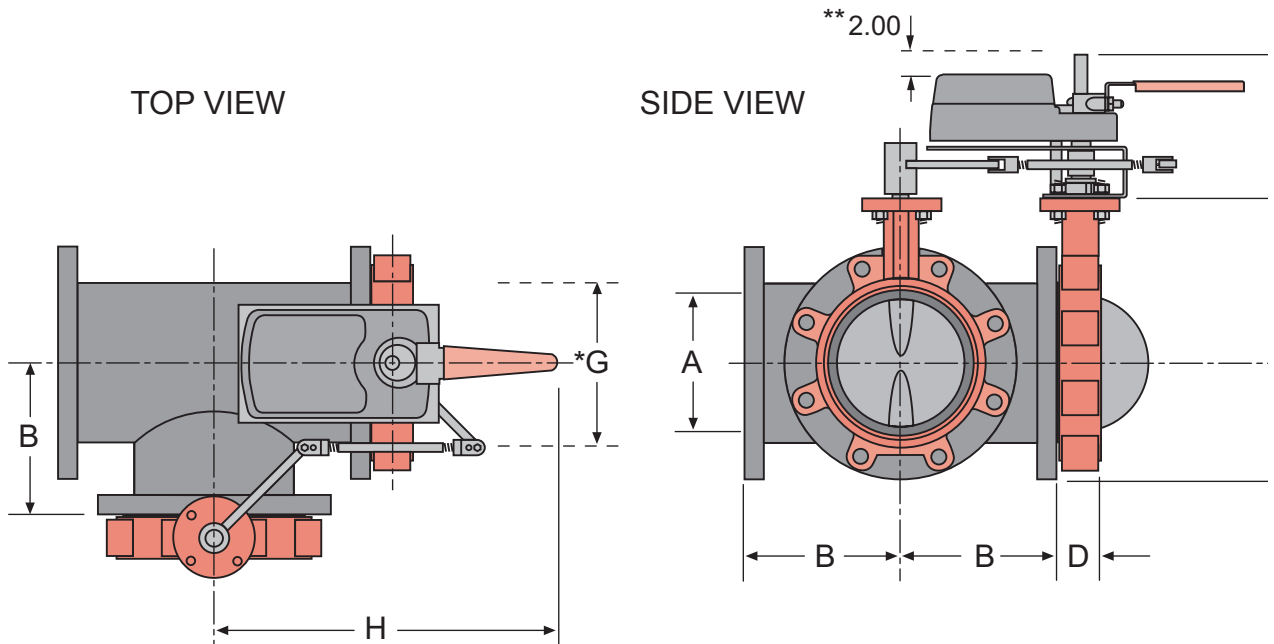
Dimensions

3-WAY VALVE WITH CA SERIES ELECTRIC ACTUATOR

Valve NPT	Model No.	C _v 90°	C _v 60°	A	B	C	D	E	H	Actuator Model	F	G*
2"	__L3-X020	144	61	2.00	4.50	3.00	1.62	5.50	12.00	NR-2216	7.50	10.00
2-1/2"	__L3-X025	282	107	2.50	5.00	3.50	1.80	6.00	13.00	NR-2224	7.50	10.00
3"	__L3-X030	461	154	3.00	5.50	3.80	1.80	6.20	13.50	SR-2216	7.50	—
4"	__L3-X040	841	274	4.00	6.50	4.50	2.00	7.00	14.50	B Models	7.50	—
5"	__L3-X050	1376	428	5.00	7.50	5.00	2.12	7.50	15.50	Dual Act.	13.25	—
6"	__L3-X060	1850	567	5.80	8.00	5.50	2.12	8.00	16.25			

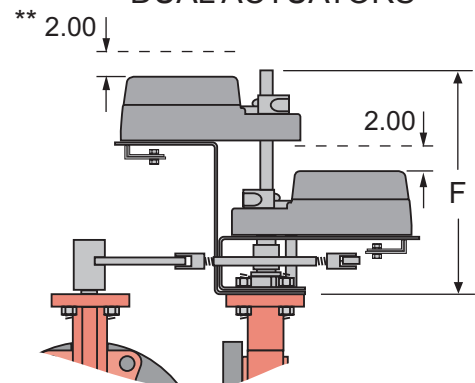
Configuration Number
 NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

*G = range of handle rotation



**minimum required for cover removal

DUAL ACTUATORS



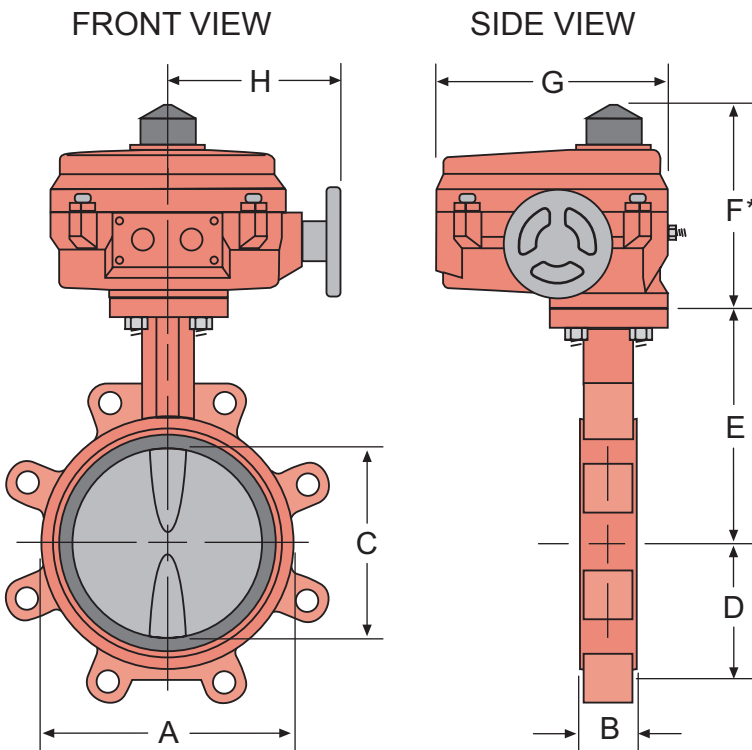
CF Series Automated Butterfly Valves

Dimensions

2-WAY SERIES 31 VALVE WITH SERIES 70 ELECTRIC ACTUATOR

Valve NPT	Model No.	C _v 90°	C _v 60°	A	B	C	D	E	Lug Bolting Data		
									BC	Holes	Threads
2"	__L2-X020	144	61	3.69	1.62	2.00	2.30	5.50	4.75	4	5/8-11
2-1/2"	__L2-X025	282	107	4.19	1.75	2.50	2.57	6.00	5.50	4	5/8-11
3"	__L2-X030	461	154	4.88	1.75	3.00	2.81	6.25	6.00	4	5/8-11
4"	__L2-X040	841	274	6.06	2.00	4.00	4.09	7.00	7.50	8	5/8-11
5"	__L2-X050	1376	428	7.06	2.12	5.00	4.61	7.50	8.50	8	3/4-10
6"	__L2-X060	1850	567	8.12	2.12	5.75	5.06	8.00	9.50	8	3/4-10
8"	__L2-X080	3316	1081	10.50	2.50	7.75	6.05	9.50	11.75	8	3/4-10
10"	__L2-X100	5430	1710	12.75	2.50	9.75	7.69	10.75	14.25	12	7/8-9
12"	__L2-X120	8077	2563	14.88	3.00	11.75	9.02	12.25	17.00	12	7/8-9
14"	__L2-X140	10538	3384	17.05	3.00	13.25	9.93	13.62	18.75	12	1-8
16"	__L2-X160	13966	4483	19.21	4.00	15.25	11.30	14.75	21.25	16	1-8
18"	__L2-X180	17214	5736	21.12	4.25	17.25	12.16	16.00	22.75	16	1 1/8-7

↗ N=Normally Open / C=Normally Closed
 ↘ NY=Nylon Coated Disc / AB=Aluminum Bronze Disc



Actuator Model	F*	G	H
70-0051	6.70	7.50	5.80
70-0081/0121/0201	8.10	10.10	7.80
70-0301/0501/0651	8.80	12.10	9.50

* Allow additional 5" for Actuator Cover removal.

**CF Series
 Automated Butterfly Valves**

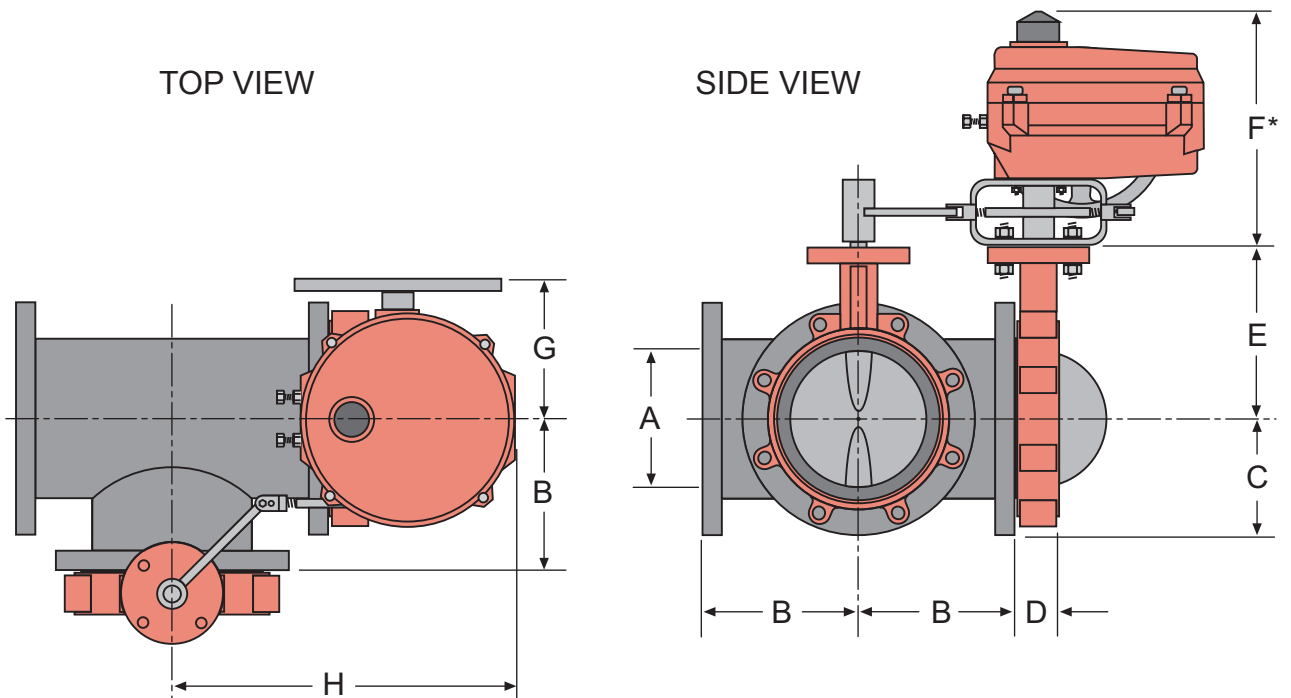
Dimensions

3-WAY SERIES 31 VALVE WITH SERIES 70 ELECTRIC ACTUATOR

Valve NPT	Model No.	C _v 90°	C _v 60°	A	B	C	D	E	Actuator Model	F*	G	H
2"	_ _ L3-X020	144	61	2.00	4.50	3.00	1.62	5.50	70-0051	9.70	5.80	11.00
2-1/2"	_ _ L3-X025	282	107	2.50	5.00	3.50	1.80	6.00	70-0051	9.70	5.80	11.60
3"	_ _ L3-X030	461	154	3.00	5.50	3.80	1.80	6.20	70-0051	9.70	5.80	12.00
4"	_ _ L3-X040	841	274	4.00	6.50	4.50	2.00	7.00	70-0081	11.10	7.80	15.20
5"	_ _ L3-X050	1376	428	5.00	7.50	5.00	2.12	7.50	70-0121	11.10	7.80	16.30
6"	_ _ L3-X060	1850	567	5.80	8.00	5.50	2.12	8.00	70-0201	11.10	7.80	16.80
8"	_ _ L3-X080	3316	1081	7.80	9.00	6.80	2.50	9.50	70-0301	12.80	9.50	19.50
10"	_ _ L3-X100	5430	1710	9.80	11.00	8.00	2.50	10.80	70-0501	12.80	9.50	21.50
12"	_ _ L3-X120	8077	2563	11.80	12.00	9.50	3.00	12.20	70-0651	12.80	9.50	22.70
14"	_ _ L3-X140	10538	3384	13.20	14.00	10.50	3.00	13.60	70-0651	12.80	9.50	24.70
16"	_ _ L3-X160	22339	7144	15.20	15.00	11.80	4.00	14.80	70-0651	12.80	9.50	26.20

Configuration Number
 NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

* Allow additional 5" for Actuator Cover removal.



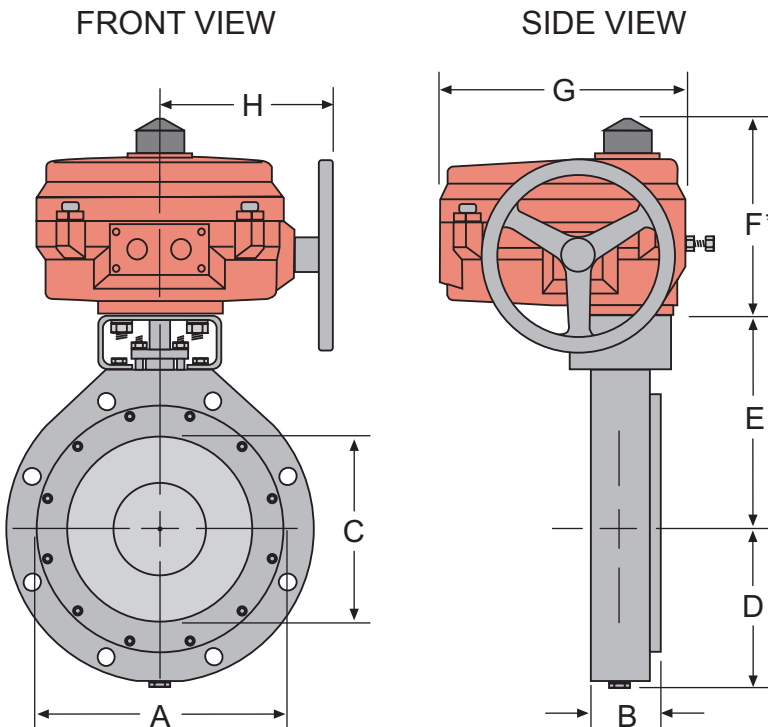
**CF Series
 Automated Butterfly Valves**

Dimensions

2-WAY SERIES 41 HIGH PERFORMANCE VALVE WITH SERIES 70 ELECTRIC ACTUATOR

Valve NPT	Model No.	C _v 90°	C _v 60°	A	B	C	D	E	Lug Bolting Data		
									BC	Holes	Threads
2-1/2"	MKL2-X025	160	78	4.75	1.88	2.28	3.00	6.38	5.50	4	5/8-11
3"	MKL2-X030	185	123	5.25	1.88	2.86	3.25	6.63	6.00	4	5/8-11
4"	MKL2-X040	375	250	6.72	2.03	3.72	4.09	7.5	7.50	8	5/8-11
5"	MKL2-X050	790	360	7.62	2.23	4.83	5.07	7.5	8.50	8	3/4-10
6"	MKL2-X060	1350	510	8.62	2.23	5.88	5.57	8	9.50	8	3/4-10
8"	MKL2-X080	2800	1060	10.81	2.40	7.80	6.94	9.5	11.75	8	3/4-10
10"	MKL2-X100	4300	1630	13.06	2.75	9.78	8.56	10.75	14.25	12	7/8-9
12"	MKL2-X120	6650	2530	15.42	3.08	11.74	10.18	12.25	17.00	12	7/8-9

↳ N=Normally Open / C=Normally Closed



Actuator Model	F*	G	H
70-0051	6.70	7.50	5.80
70-0081/0121/0201	8.10	10.10	7.80
70-0301/0501/0651	8.80	12.10	9.50

* Allow additional 5" for Actuator Cover removal.

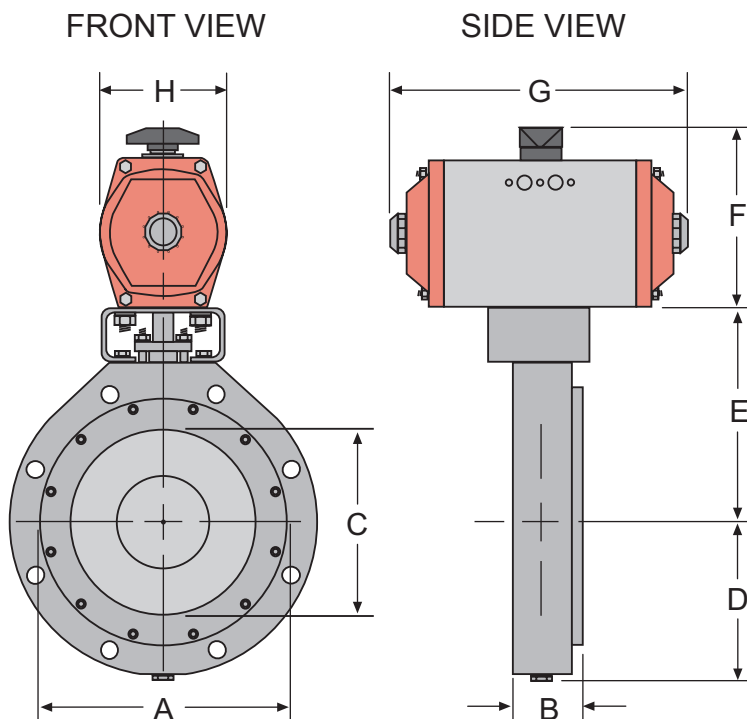
**CF Series
 Automated Butterfly Valves**

Dimensions

2-WAY SERIES 41 HIGH PERFORMANCE VALVE WITH SERIES 92 PNEUMATIC ACTUATOR

Valve NPT	Model No.	C _v 90°	C _v 60°	A	B	C	D	E	Lug Bolting Data		
									BC	Holes	Threads
2-1/2"	MKL2-X025	160	78	4.75	1.88	2.28	3.00	6.38	5.50	4	5/8-11
3"	MKL2-X030	185	123	5.25	1.88	2.86	3.25	6.63	6.00	4	5/8-11
4"	MKL2-X040	375	250	6.72	2.03	3.72	4.09	7.5	7.50	8	5/8-11
5"	MKL2-X050	790	360	7.62	2.23	4.83	5.07	7.5	8.50	8	3/4-10
6"	MKL2-X060	1350	510	8.62	2.23	5.88	5.57	8	9.50	8	3/4-10
8"	MKL2-X080	2800	1060	10.81	2.40	7.80	6.94	9.5	11.75	8	3/4-10
10"	MKL2-X100	4300	1630	13.06	2.75	9.78	8.56	10.75	14.25	12	7/8-9
12"	MKL2-X120	6650	2530	15.42	3.08	11.74	10.18	12.25	17.00	12	7/8-9

→ N=Normally Open / C=Normally Closed



Actuator Model	F	G	H
92/93-63	4.29	6.00	2.76
92/93-83	5.20	7.89	3.58
92/93-92	5.54	8.91	3.94
92/93-118	6.93	12.10	4.72
92/93-127	7.73	12.34	5.39
92/93-160	9.37	15.45	6.77
92/93-210	11.61	18.92	8.83
90/91-255	13.46	26.70	10.75

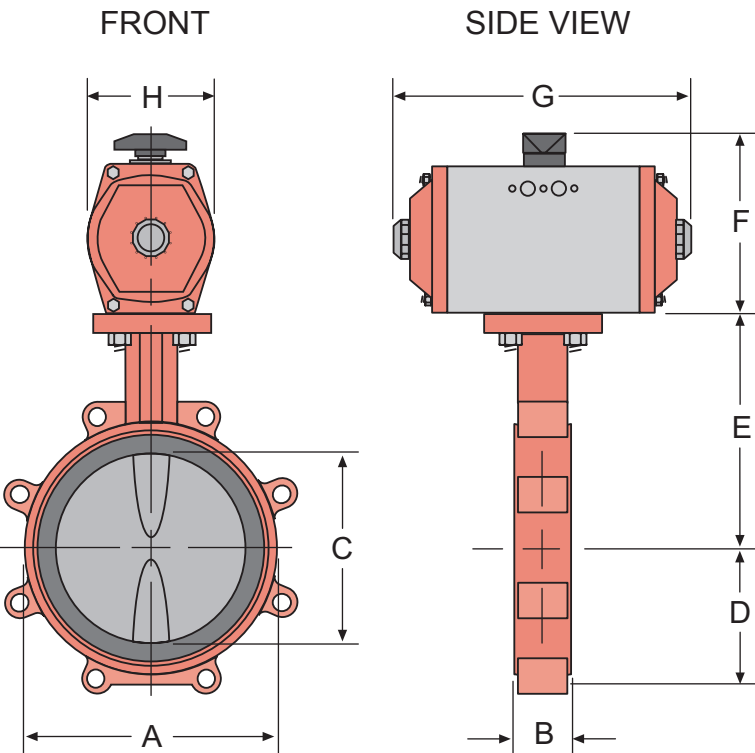
**CF Series
Automated Butterfly Valves**

Dimensions

2-WAY SERIES 31 VALVE WITH SERIES 92/93 PNEUMATIC ACTUATOR

Valve NPT	Model No.	C _v 90°	C _v 60°	A	B	C	D	E	Lug Bolting Data		
									BC	Holes	Threads
2"	__L2-X020	144	61	3.69	1.62	2.00	2.30	5.50	4.75	4	5/8-11
2-1/2"	__L2-X025	282	107	4.19	1.75	2.50	2.57	6.00	5.50	4	5/8-11
3"	__L2-X030	461	154	4.88	1.75	3.00	2.81	6.25	6.00	4	5/8-11
4"	__L2-X040	841	274	6.06	2.00	4.00	4.09	7.00	7.50	8	5/8-11
5"	__L2-X050	1376	428	7.06	2.12	5.00	4.61	7.50	8.50	8	3/4-10
6"	__L2-X060	1850	567	8.12	2.12	5.75	5.06	8.00	9.50	8	3/4-10
8"	__L2-X080	3316	1081	10.50	2.50	7.75	6.05	9.50	11.75	8	3/4-10
10"	__L2-X100	5430	1710	12.75	2.50	9.75	7.69	10.75	14.25	12	7/8-9
12"	__L2-X120	8077	2563	14.88	3.00	11.75	9.02	12.25	17.00	12	7/8-9
14"	__L2-X140	10538	3384	17.05	3.00	13.25	9.93	13.62	18.75	12	1-8
16"	__L2-X160	13966	4483	19.21	4.00	15.25	11.30	14.75	21.25	16	1-8
18"	__L2-X180	17214	5736	21.12	4.25	17.25	12.16	16.00	22.75	16	1 1/8-7
20"	__L2-X200	22339	7144	23.25	5.00	19.25	14.00	17.25	25.00	20	1 1/8-7

→ N=Normally Open / C=Normally Closed
→ NY=Nylon Coated Disc / AB=Aluminum Bronze Disc



Actuator Model	F	G	H
92/93-63	4.29	6.00	2.76
92/93-83	5.20	7.89	3.58
92/93-92	5.54	8.91	3.94
92/93-118	6.93	12.10	4.72
92/93-127	7.73	12.34	5.39
92/93-160	9.37	15.45	6.77
92/93-210	11.61	18.92	8.83
90/91-255	13.46	26.70	10.75

**CF Series
 Automated Butterfly Valves**

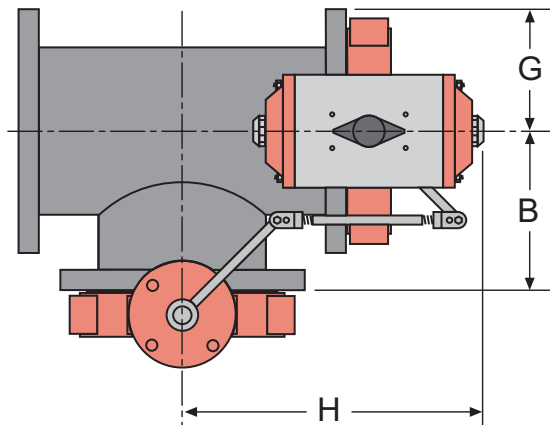
Dimensions

3-WAY SERIES 31 VALVE WITH SERIES 92/93 PNEUMATIC ACTUATOR

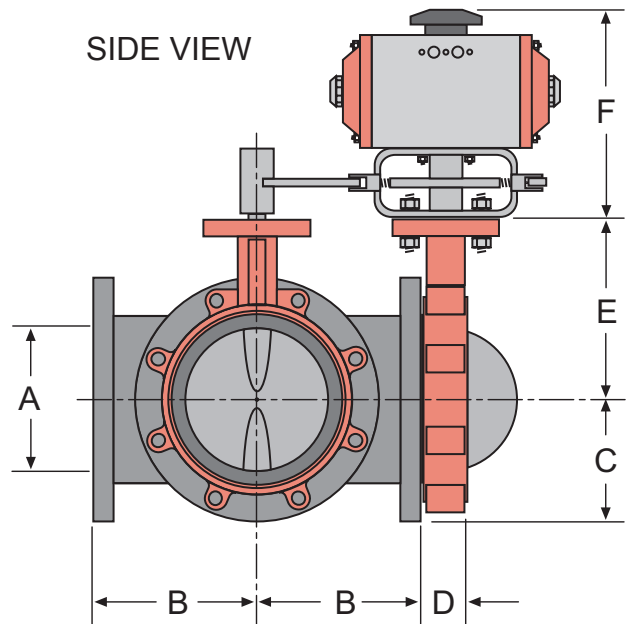
Valve NPT	Model No.	C _v 90°	C _v 60°	A	B	C	D	E	Actuator Model	F	G	H
2"	__L3-X020	144	61	2.00	4.50	3.00	1.62	5.50	92/93-063	7.30	3.00	8.30
2-1/2"	__L3-X025	282	107	2.50	5.00	3.50	1.80	6.00	92/93-083	8.20	3.50	9.80
3"	__L3-X030	461	154	3.00	5.50	3.80	1.80	6.20	92/93-083	8.20	3.80	10.30
4"	__L3-X040	841	274	4.00	6.50	4.50	2.00	7.00	92/93-083	8.20	4.50	11.40
5"	__L3-X050	1376	428	5.00	7.50	5.00	2.12	7.50	90/93-118	9.90	5.00	14.60
6"	__L3-X060	1850	567	5.80	8.00	5.50	2.12	8.00	92/93-118	9.90	5.50	15.20
8"	__L3-X080	3316	1081	7.80	9.00	6.80	2.50	9.50	92/93-127	11.70	6.80	18.40
10"	__L3-X100	5430	1710	9.80	11.00	8.00	2.50	10.80	92/93-160	13.40	8.00	19.90
12"	__L3-X120	8077	2563	11.80	12.00	9.50	3.00	12.20	92/93-210	15.60	9.50	23.00
14"	__L3-X140	10538	3384	13.20	14.00	10.50	3.00	13.60	92/93-210	17.60	10.50	25.00
16"	__L3-X160	13966	4483	15.20	15.00	11.80	4.00	14.80	90/91-255	19.50	11.80	30.40
18"	__L3-X180	17214	5736	17.20	16.50	12.50	4.20	16.00	90/91-255	19.50	12.50	32.00
20"	__L3-X200	22339	7144	19.20	18.00	13.75	5.00	17.20	90/91-255	19.50	13.80	33.80

Configuration Number
 NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

TOP VIEW



SIDE VIEW



**CF Series
 Automated Butterfly Valves**

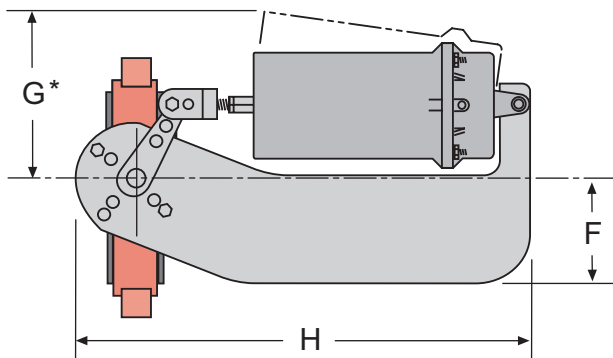
Dimensions

2-WAY SERIES 31 VALVE WITH LOW PRESSURE PNEUMATIC ACTUATOR

Valve NPT	Model No.	C _v 90°	C _v 60°	A	B	C	D	E	Lug Bolting Data		
									BC	Holes	Threads
2"	__L2-X020	144	61	2.00	2.30	1.62	5.50	8.62	4.75	4	5/8-11
2-1/2"	__L2-X025	282	107	2.50	2.57	1.75	6.00	9.12	5.50	4	5/8-11
3"	__L2-X030	461	154	3.00	2.81	1.75	6.25	9.38	6.00	4	5/8-11
4"	__L2-X040	841	274	4.00	4.09	2.00	7.00	13.75	7.50	8	5/8-11
5"	__L2-X050	1376	428	5.00	4.61	2.12	7.50	14.38	8.50	8	3/4-10
6"	__L2-X060	1850	567	5.75	5.06	2.12	8.00	14.88	9.50	8	3/4-10
8"	__L2-X080	3316	1081	7.75	6.05	2.50	9.50	16.38	11.75	8	3/4-10

→ N=Normally Open / C=Normally Closed
 → NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

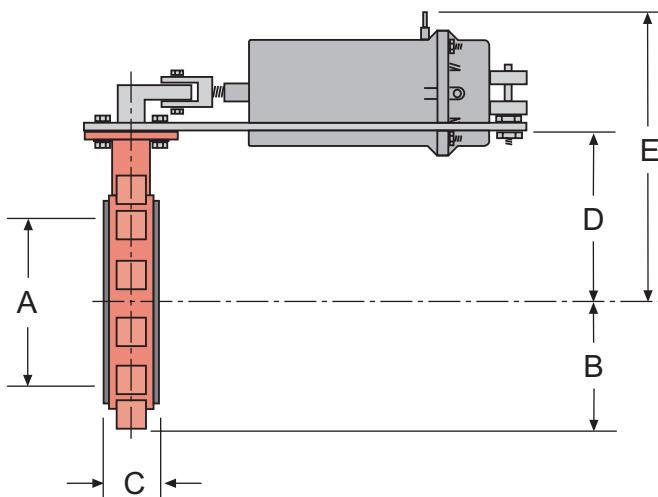
TOP VIEW



Actuator Model	F	G*	H
NR-D-3153	3.38	5.66	15.97
NR-D-3244	4.88	7.31	19.94
NR-D-3246	5.45	8.94	25.81

* G = Max swing of actuator

SIDE VIEW



**CF Series
 Automated Butterfly Valves**

Dimensions

2-WAY SERIES 31 VALVE WITH DUAL LOW PRESSURE PNEUMATIC ACTUATORS

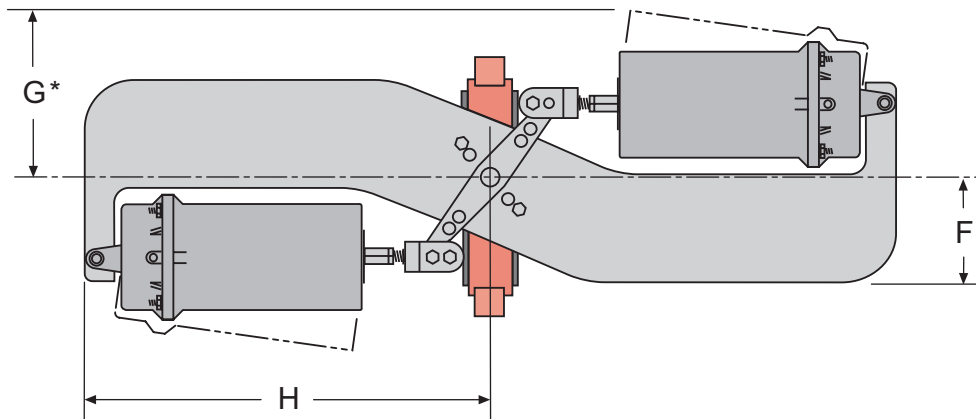
Valve NPT	Model No.	C _v 90°	C _v 60°	A	B	C	D	E	Lug Bolting Data		
									BC	Holes	Threads
8"	L2-X080	3316	1081	7.75	6.05	2.50	9.50	16.38	11.75	8	3/4-10
10"	L2-X100	5430	1710	9.75	7.69	2.50	10.75	17.62	14.25	12	7/8-9

→ N=Normally Open / C=Normally Closed
 → NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

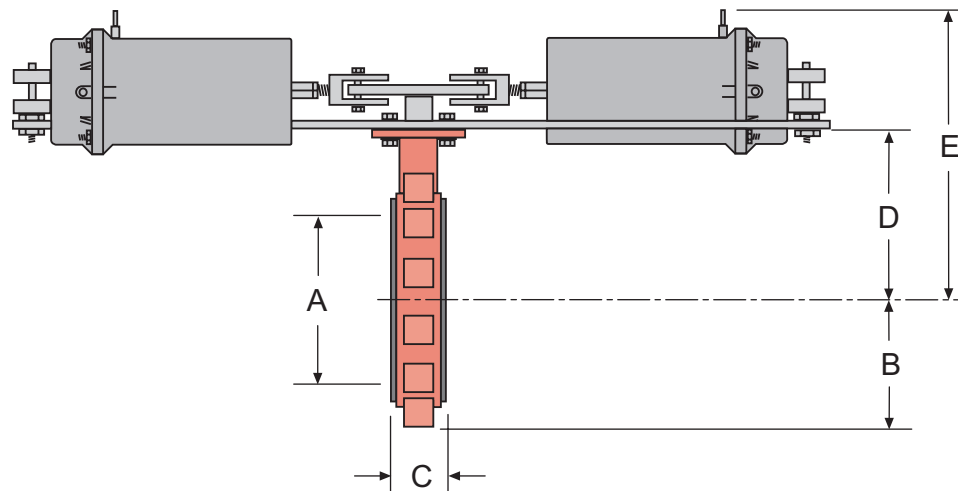
Actuator Model	F	G*	H
NR-D-3246-D	6.00	8.94	22.75

* G = Max swing of actuator

TOP VIEW



SIDE VIEW



**CF Series
Automated Butterfly Valves**

Dimensions

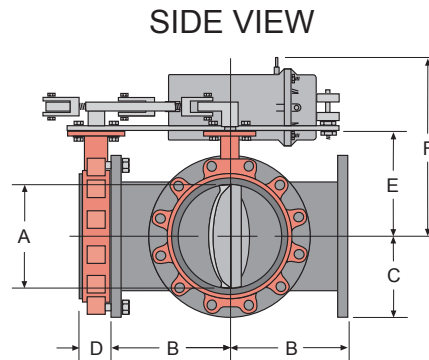
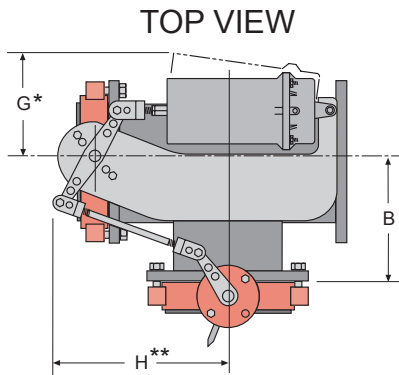
3-WAY SERIES 31 VALVE WITH LOW PRESSURE PNEUMATIC ACTUATOR

Valve NPT	Model No.	C _v 90°	C _v 60°	A	B	C	D	E
2"	_L3-x020	144	61	2.00	4.50	3.00	1.62	5.50
2-1/2"	_L3-x025	282	107	2.50	5.00	3.50	1.80	6.00
3"	_L3-x030	461	154	3.00	5.50	3.80	1.80	6.25
4"	_L3-x040	841	274	4.00	6.50	4.50	2.00	7.00
5"	_L3-x050	1376	428	5.00	7.50	5.00	2.12	7.50
6"	_L3-x060	1850	567	5.80	8.00	5.50	2.12	8.00

Actuator Model	F	G*	H**
NR-D-3153	8.62	5.66	9.83
NR-D-3153	9.12	5.66	10.40
NR-D-3153	9.38	5.66	10.90
NR-D-3244	13.75	7.31	12.02
NR-D-3246	14.38	8.94	13.76
NR-D-3246	14.88	8.94	14.26

NY=Nylon Coated Disc AB=Aluminum Bronze Disc

* G = Max swing of actuator
**H = Max swing of arm



3-WAY SERIES 31 VALVE WITH DUAL LOW PRESSURE PNEUMATIC ACTUATORS

Valve NPT	Model No.	C _v 90°	C _v 60°	A	B	C	D	E
6"	_L3-x060	1850	567	5.80	8.00	5.50	2.12	8.00
8"	_L3-x080	3316	1082	7.80	9.00	6.75	2.50	9.50

Actuator Model	F	G*	H
NR-D-3246-D	14.88	8.94	23.81
NR-D-3246-D	16.38	8.94	24.00

NY=Nylon Coated Disc AB=Aluminum Bronze Disc

* G = Max swing of actuator

